What I Claim As My Invention Is:

1. An improved mounting bracket system for SCUBA tanks that is quicker, easier, more balanced, and secure comprising two individual brackets of different design of which said brackets longer widths are the vertical plain with the narrow widths being the horizontal plain that interconnect to each other wherein one of the brackets is called the SCUBA tank bracket and the second is called the BCD (Bouyancy Compensating Device) bracket with the said first brackets' back side having a curved radius the full vertical length of the bracket with the front side of said first bracket having 3 Dovetail rails (a triangle shaped pattern) being equal in their horizontal width protruding out from the face of the front side of said first bracket in a lateral manner from its' vertical center wherein one rail is longer in its' vertical length than the other two rails of the said 3 rails, wherein said longer rail is positioned in the middle center of said front side of the first bracket with the said longer rails middle center being of equal distance from the middle center of the front side of said first bracket in both vertical directions with the other two rails being of equal vertical lengths to each other positioned one each on the opposite ends of the said longer rail with each of the two shorter rails being separated from the ends of the said longer rail by a slot that is recessed below the face of the said front side of the first bracket, across its' horizontal plain from leading edge to leading edge of the bracket wherein said recessed slot is designed for placing fastening agents against to facilitate the interconnecting of the said two brackets together wherein once said two brackets are interconnected they are positioned to be fixed in place with Detent pins by the design of the outer ends of the two shorter brackets being set back from the vertical leading edges of the front side of said first bracket wherein an open area having a flush surface with no protrusions extending out from the said open surface exists allowing room for one of the said Detent pins to be positioned across the horizontal plain of the said flush surface from leading edge to leading edge of the horizontal sides of the said front which will secure the said two brackets together in a fixed position by means of the said 3 Dovetail rails being joined with the female Dovetail slot located on the front side in the vertical center being open ended at both ends in the said horizontal center of the front side of the said second bracket wherein the said female Dovetail slot is aligned with the matching pattern of the said Dovetail rail at either end of the said two brackets respectively in a vertical fashion which will permit the rails of the said SCUBA tank bracket to slide into the said female Dovetail slot of the said BCD bracket to be accomplished until both brackets are even with one another at their ends aligning the Detent pin holes located on both sides at both ends of said second bracket which will allow the said Detent pins to be inserted into the Detent pin holes at either end from either of the sides of said second bracket through to the opposite side of said second bracket locking the said two brackets together in a fixed position so they cannot be disconnected until such time as a Detent pin is removed from its' locking position.

Title Of Invention: SCUBA Tank Mounting Brackets

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BACKGROUND OF THE INVENTION

[0001] The invention relates to mounting brackets and, more particularly, to a quick mounting assembly featuring a pair of interconnecting mounting brackets for curved and flat objects for the purpose of attaching a SCUBA tank and accessories to a SCUBA divers BCD (Bouyancy Compensating Device).

[0002] SCUBA divers wear a BCD to which SCUBA tank(s), regulators, and various other accessories are attached. The BCD is a harness type device serving to regulate the divers bouyancy in the water and for the purpose of attaching the divers' necessary accessories for SCUBA diving. The accessories are SCUBA tanks, tank brackets for securing small tanks to the main SCUBA tank, regulators, hoses, and dive lights but not limited to these items. In addition the diver wears weights by means of a weight belt worn around the waist or by weights placed in special pouches built into the BCD. All combined these items mentioned create a considerable amount of weight for the diver to carry. The SCUBA tank is secured to the BCD by means of one or two, typically 2" inch wide, straps with locking cam buckles that are attached to the BCD. Securing the SCUBA tank and other accessories which are attached to the SCUBA tank to the divers BCD can be time consuming, stressful, and not without risk when done incorrectly. The main SCUBA tank with accessories must be secured tightly and at proper position in relation to the BCD for good balance and safety when the diver is in the water. Set up of all this equipment requires many redundant procedures that become stressful and time consuming. The SCUBA tank and accessories if not properly balanced will affect the divers' control while in the water. At times the BCD strap(s) are known to come loose after the diver enters the water. This is a very dangerous and life threatening situation for the diver. Should this happen-another diver needs to re-secure the SCUBA tank to the BCD. This is difficult at best while in the water particularly if there is only one strap securing the SCUBA tank to the BCD.

DISCUSSION OF REALATED ART

[003] In U.S. Pat. No. 4,555,083 issued to Frank D. Carter on Nov. 26, 1985, for SCUBA TANK POSITIONER, an apparatus to prevent a tank, such as a SCUBA tank from rolling around on a supporting surface such as the bed of a truck or within the trunk of a automobile. The interconnection of the two brackets is secured by a fixed locking non removeable protrusion incorporated at one end of the female portion of the Dovetail design and a fixed band being a ring design for receiving a SCUBA tank incorporated into the entire length of the male Dovetail bracket for holding the SCUBA tank to that bracket. By contrast the current inventions' bracket with the female Dovetail design does not have a protruding stop at one end of the slot which will allow the two brackets to be connected together from either ends of the brackets then secured in place with two removeable Detent pins. In addition the present inventions' small curved radius for attaching the SCUBA tank to the male Dovetail bracket allows for SCUBA tanks with a variety of diameter sizes to be securely attached to the same bracket unlike the prior art which requires a different diameter ring band for SCUBA tanks with size diameters. By contrast the present inventions design differences improves the applications' utility of use.

[0004] In U.S. Patent 4,570,887 issued to Gerald K. BanisteronFeb18,1986 QUICK- CONNCECT MOUNT FOR A CAMERA AND TRIPOD, a quick-connect mount for a camera and tripod has a Dovetail design specific for use with a camera tripod. In contrast the present inventions' design is for use with a SCUBA tank with a curved radius on one side of the bracket with the male Dovetail rail for attaching to a SCUBA tank in contrast to the prior art having no functional capability of attaching its' male Dovetail bracket to a SCUBA tank unlike the present invention.

SUMMARY OF THE INVENTION

[0005] The primary object of the present invention is to allow a SCUBA diver quicker mounting and dismounting of a SCUBA tank with accessories with less effort, better balance, and more securely by using the two interlocking mounting brackets. One of the brackets' attaches to the SCUBA tank and the other attaches to the divers BCD after which they are interconnected and secured in fixed position together with Detent pins. The Dovetail design (a triangle shape pattern) of the two mounting brackets provides for the interconnection of the

two brackets by a sliding action incorporated by the nature of the Dovetail male female design. Together, the brackets are locked in place with two Detent pins. One mounting bracket is secured to a SCUBA tank with two straps and the second mounting bracket is secured to the divers BCD by means of screws and nuts.

[0006] The conventional method of attaching a SCUBA tank to a BCD involves several steps. By design the BCD has one or two straps connected to it that can be removed. The strap(s) secure the SCUBA tank and accessories to the BCD. The divers' accessories attached to the SCUBA tank must be secured to the SCUBA tank after the BCD is secured to the SCUBA tank since the securing strap(s) must be positioned over the top of the SCUBA tank then lowered in a vertical position over the SCUBA tank. Once this is done the strap(s) are secured while attempting to maintain the BCD in its' proper height position against the SCUBA tank for proper balance in the water. After the BCD is secured along with any accessories making use of the straps for securing items against SCUBA tank such as a Pony tank or light battery, the diver then attaches the regulators and hoses to the SCUBA tank. BCDs that are weight integrated to carry the 25 or more pounds of weights the diver wears are typically added before the tank is secured to the BCD. After setting up all this SCUBA gear for the dive, the diver then secures the BCD harness sufficiently to stand up with it, attaining a hunched over forward position, and then further tightening and securing the BCD. All in all the weight can range upwards to 80lbs. After the diver has completed the dive, the reverse process takes place for detaching the BCD from the SCUBA tank and setting up again for another dive.

[0007] The purpose of this invention is to provide a better mounting application for attaching a SCUBA tank and a BCD together. With this invention the bracket that attaches to the SCUBA tank stays affixed to the SCUBA tank with exception for general cleaning and maintenance that may be need. Likewise the second bracket stays attached to the BCD. With the brackets being secured to their respective items the diver has no need to attach and reattach straps to the SCUBA tank before and after each dive and this does away with the conventional method of setting up for the dive as explained in the previous paragraph. Accessories that are attached to the SCUBA tank can be attached before the SCUBA tank is secured to the BCD. Unlike the conventional method, once the set up is complete, the diver simply attaches the two brackets via the Dovetail rail and slot, secures them with the Detent pins and then puts on the BCD. A special feature of this invention allows the diver to put on and secure the BCD

prior to attaching the SCUBA tank to the BCD. The SCUBA tank with accessories can then be attached to the BCD with assistance from another person. Putting on the BCD first allows the diver to get a much more comfortable and secure fit of the BCD harness without all the added weight of the SCUBA tank with accessories weighing down on the back. This invention would also have benefit not provided by the conventional system for those individuals who are handicapped and or confined to a wheel chair who are engaged in the sport of SCUBA diving.

BRIEF DESCRIPTION OF SEVERAL VIEWS OF THE DRAWINGS

[0008] Contained herein is a brief description of several drawings of the invention for the purpose of illustration which denotes similar elements of the invention throughout the several views:

[0009] FIG. 1 illustrates an exploded view of the SCUBA Tank Mounting Bracket system showing the two brackets and Detent pins. One bracket being the SCUBA tank bracket and the other being the BCD bracket.

[0010] FIG. 1a illustrates the back view, which is the curved side of the SCUBA tank bracket.

[0011] FIG. 1b illustrates the front view of the SCUBA tank bracket having the Dovetail rails, tank strap slots, and spacing for the Detent pins.

[0012] FIG. 1c illustrates the front view of the BCD bracket having the Dovetail slot wherein the Dovetail rails interconnect.

[0013] FIG. 1d illustrates the flat back view of the BCD bracket having that faces the BCD.

[0014] FIG. 1e illustrates a mirrored side view of the BCD bracket showing the holes wherein the Detent pins area placed.

[0015] FIG. 2 illustrates a view of the two brackets securely interconnected and secured with the Detent pins.

[0016] FIG. 2a illustrates a mirrored end view showing the relationship of the Detent pin to

the brackets when securing the brackets when interconnected.

DETAILED DESCRIPTION OF THE INVENTION

[0017] The invention comprises two brackets used for mounting a SCUBA tank to a SCUBA divers Bouyancy Compensating Device (BCD) by means of the two mounting brackets being interconnected and secured together with a Detent pin. One bracket is referred to as the SCUBA tank bracket and the other is referred to as the BCD bracket wherein the back side of the SCUBA tank bracket is attached to the SCUBA tank and the front side is attached to the front side of the BCD bracket with the back side of the BCD bracket being attached to the divers BCD. The brackets are made of 6061 aluminum. Three are three steps to the production of the brackets. An extrusion process creates the rectangular and curved body shapes during which time the Dovetail protruding rail and slot shapes are formed. The Detent pin holes, screw holes, recessed slots for attaching straps, and the spaces for the Detent pin pass through on the SCUBA tank bracket are then CNC machined into the brackets. The final process is that of anodizing the aluminum and coloring them black. The Detent pins used in securing the brackets together are made of stainless steel with a spring-loaded ball bearing at one end and a steel ring at the other. The Detent pins have rated shear strength of 11,000 pounds.

[0018] Now referring to FIG. 1 is the illustrated the invention in an exploded view showing the SCUBA tank mounting brackets assembly 10. The mounting bracket assembly 10 is shown disassembled and consists of two individual brackets 11 and 12 secured that would be secured together by Detent pins 23 when brackets are interconnected together. Bracket 11 mounts to a SCUBA tank, and bracket 12 mounts to divers' BCD. The SCUBA tank bracket 11 is shown in further detail in FIGS. 1a being the back view and 1b being the front view. The BCD bracket 12 is shown in further detail in FIGS. 1c the front view and 1d being the back view.

[0019] Now referring to FIG. 1a, the back view of the SCUBA tank bracket 11, is shown with a curved radius back side 13 its' full vertical length designed to conform to and be secured on the vertical plain of a SCUBA tank.

[0020] Now referring to FIG. 1b, the front side of the SCUBA tank bracket 11, this side consists of three protruding Dovetail (triangle shaped) rails 15 and 16 located in the vertical center of

the bracket. The two rails 15 being shorter in their vertical length but equal in their horizontal width to the one rail 16. Each of rail15 is located on either side of rail 16 and separated from rail 16 by 17. Rail 16 is centered in the middle of the bracket between each of the rails 15. There are two slots 17 recessed below the face of the bracket located between rails 15 and 16 designed to accommodate straps for attaching the SCUBA tank bracket to the SCUBA tank. Rails 15 do not extend all the way to the ends of the SCUBA tank bracket. There is a flat surface area 18, on the face of the bracket at both outer ends of rails 15, which extends to the outer leading edges of the bracket. The flush surfaces 18 permits the Detent pins 24, as seen in FIG 1, to be inserted into the Detent pin holes 23 located on both sides at both ends of the BCD bracket 12 for securing the interconnected brackets 11 and 12 in a fixed position FIG 2a so they will not slide apart.

[0021] Now referring to FIG. 1c, the front side of the BCD bracket12, this side consists of a single vertically centered Dovetail slot 20 running the full length of the bracket and open at both ends. The Dove tail slot 20 is designed to accommodate the three Dovetail rails 15 and 16 shown in FIG 1b, the front side of the SCUBA tank bracket, and when fully integrated with one another the two brackets 11 and 12 as shown in FIG 1, are locked together by inserting the Detent pins 24 into the Detent pin holes 23 located on the side of the BCD bracket as shown in FIG 1e.

[0022] Now referring to FIG 1d, the back side of the BCD bracket 12, this side of the bracket is a flat surface having two holes 21 placed flush against its supporting surface, the BCD and secured to the BCD by screws and nuts placed through the two holes 21 that are located near both ends of bracket 12, FIG 1e.

[0023] Now referring to FIG 1e, this is a mirrored side view of the BCD bracket 12 showing the Detent pin holes 23 wherein the Detent pins 24 are inserted for the purpose of securing the interconnected brackets 11 and 12 together in a fixed position so they cannot separate as seen in FIG 2 and FIG 2a.

[0024] Now referring to FIG 2, this a view the SCUBA tank mounting brackets invention assembly 10 as seen in FIG 1 being interconnected together secured in a fixed and position with the Detent pins 24 so the SCUBA tank brackets 11 and 12 cannot separate until such time a Detent pin 24 is removed from the Detent pin hole 23.

[0025] Now referring to FIG 2a, this is a mirrored end view of both brackets 11 and 12 fully interconnected and secured together with the Detent pin 24. It further illustrates how the integrating design of the flush surface area 18 combined with the rail 15 being set back from the leading edge of the bracket 11 allows the Detent pin 24 to pass through both sides of the brackets 11 and 12 through the Detent pin holes 23 securing the brackets together in a fixed position until such time a Detent pin 24 is removed.

[0026] While certain features of this invention have been illustrated and described and noted in the annexed claims the invention is not considered limited to the example chosen for the purposes of disclosure. Those skilled in the art will recognize that modifications in arrangement and detail are possible without departing from the true spirit and scope of the invention.